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# RFI Technical Evaluation Summary Report

*on*

## *Responses to the Board issued RFI for An Improved Wireless E9-1-1 Voice and Data Delivery Network*



*submitted to:*

## Indiana Wireless E911 Advisory Board

*June 2004*



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## **1. EXECUTIVE OVERVIEW**

### **1.1 BACKGROUND**

L. Robert Kimball & Associates (Kimball) entered into a professional services contract with the Indiana Wireless E9-1-1 Advisory Board (Board) for the purpose of developing a Request for Information (RFI); publishing the RFI for responses from the 9-1-1 telecommunications industry; and providing an independent review and evaluation of vendor responses to the RFI.

The RFI as written and published is designed to engage industry participation and expertise in an endeavor that will identify solutions to improve the delivery of wireless E9-1-1 calls in Indiana.

The goals and objectives of this effort are to:

- Provide better and more consistent wireless E9-1-1 service
- Improve the quality of wireless E9-1-1 service to the public
- Increase wireless E9-1-1 service accountability
- Decrease potential points of failure in the wireless E9-1-1 network
- Streamline wireless E9-1-1 service *vis a vis* costs, operations, and entities
- Provide a seamless infrastructure to deliver a consistent and equitable level of service to PSAPs, thereby improving the quality of wireless E9-1-1 service to the public
- Encourage cooperation between and among PSAPs, wireless carriers and LECs
- Provide a more efficient use of public safety resources
- Prepare PSAPs for future technologies
- Increase reliability and disaster recovery
- Provide clear demarcations of responsibility and accountability

Kimball's role in this effort was to provide expertise and guidance in evaluating responses from vendors in the following areas:

- Development of formal standardized evaluation criteria
- Technical feasibility
- Adherence to industry standard and best practices
- Technology trends in 9-1-1
- FCC and regulatory compliance

### **1.2 EVALUATION COMMITTEE**

The evaluation committee was comprised of Board members representing the PSAP community, Board staff and Kimball. Board members representing wireless carriers were excluded from the evaluation committee to avoid possible conflicts of interest.

### **1.3 EVALUATION METHODOLOGY**

The evaluation methodology was a two tier system. The first tier established a pass/fail set of response conditions as outlined in the RFI. The second tier used a uniform scoring criteria designed by Kimball and reviewed by the Board. The scoring criteria provided a uniform neutral scoring outline for each section of the RFI. The committee used this method to gauge responses the Board received from the following vendors:

- INdigital
- SBC
- Sprint
- Verizon

An initial pass/fail evaluation was performed to ensure that the responses complied with the basic requirements outlined in the RFI. The evaluation committee then conducted an in depth review and analysis of the individual responses.

## **2. EVALUATION SUMMARY**

All responses received and reviewed by the committee meet or exceed the baseline requirements as outlined in the RFI and are potentially capable of implementation, with the exception of Verizon's. Verizon's response did not offer a statewide solution. However, portions of Verizon's solution may be needed to support other statewide solutions, so the committee may further review Verizon's response at a later date. This report does not address Verizon's response in any detail.

The committee has determined that it needs additional information about each response to complete its consideration and review. Kimball recommends that the Board authorize Kimball/the committee to seek specific information and clarification from responsive vendors where necessary. We highlight each area where we recommend additional clarification within each vendor response summary.

The following sections summarize each vendor response.

### **3. SPRINT**

#### **3.1 OVERVIEW**

- CML Wireless Direct Solution
- CML suite of products
- ECS1000, Sentinel ALI, DBMS, SS7 Gateways
- Mated pair configuration of four (4) Routers: two (2) north, two (2) south, each with a SALI
- Digital ISDN trunks between selective routers and to all capable ILEC selective routers
- Deployment of Network Aggregation Points (NAPs) to aggregate trunks and circuits throughout Indiana
- Digital (ISDN) or EMF to PSAPs depending on PSAP CPE
- Migration plan from existing to new network
  - ISDN or SS7 Interconnection to the existing ILEC selective routers
    - Permits wireless carrier trunk migration
    - PSAP trunk migration

#### **3.2 TECHNICAL REQUIREMENTS (RFI SECTION IV)**

##### **3.2.1 Network Design (RFI Section 4.2)**

Sprint proposes a solution using four CML routers in a mated pair configuration. The solution uses NAPs to provide backhaul for circuits from the PSAP on diversely routed circuits to the wireless selective routers.

The response is based on RFI requirements of 2,000,000 calls annually with 20 percent annual growth over five years and provision of P.01 grade of service or better. The design proposes redundant and diverse connectivity for wireless carrier trunks—via SS7—and proposes using digital ISDN facilities between routers, as well as the routers and PSAP controllers where possible, depending on the particular CPE used by the ILEC or PSAP.

The Sprint solution demonstrates how it will accomplish load balancing and alternate call flow, as well as allowing PSAPs to transfer a wireless call to any other PSAP in the state and reduce call set up time. Diagrams and drawings provided the necessary clarification on these items in the appropriate sections of the response.

RFI Section 4.2.6 states that “...proposals must describe scalability of the proposed system and how it will support local, regional and statewide implementation for wireless 9-1-1 calls....”

On one hand, Sprint’s response provides information on the scalability of the routers and that additional mated pairs can easily be deployed. On the other hand, Sprint does not describe how its migration or implementation approach will work. The committee recommends further clarification from Sprint on these issues.

Sprint states that its solution will render trunking costs and associated ALI dip fees "...a thing of the past...." This assertion appears to contradict the pricing information supplied in RFI Section 5. The accompanying diagram also cites the elimination of selective router fees. The committee recommends further clarification from Sprint on these issues.

### **3.2.2 Selective Router/Database Facilities (RFI Section 4.3)**

Sprint proposes using four existing central offices to house and operate the aforementioned equipment, along with other Sprint network transport facilities throughout Indiana.

RFI Section 4.3 requested respondents identify how the facilities proposed would provide for, among other things, security, monitoring, logging, emergency power, diverse entry points (redundancy and diversity) and AC power installation and labeling.

Sprint took exception to the security, monitoring and logging sections because it is unwilling to disclose this information in an open forum. Sprint addressed the emergency power, diverse entry points (redundancy and diversity) and AC power installation and labeling in the response, but the committee recommends additional clarification from Sprint on these issues.

### **3.2.3 Wireless Database Services (ALI) (RFI Section 4.4)**

Sprint proposes CML's Sentinel ALI solution. Sprint provided adequate detail on how the proposed solution addresses the capabilities of the database hardware and software, as well as its compliance with processing wireless ALI, NENA standards, format and call delivery type.

The response provided an explanation of how database management could be handled in a manual or automated process, and be performed locally or remotely. Sprint also adequately describes the ALI steering capabilities and data return and formatting for multiple CPE products.

RFI Section 4.4 requested information on manual and automatic rebid capabilities, and how the proposed solution would improve the data delivery network. The response addressed all requirements but lacked sufficient detail to explain how the data delivery network would be improved. The committee recommends further clarification from Sprint on these issues.

### **3.2.4 System Maintenance and Monitoring (RFI Section 4.5)**

In the monitoring subsection, Sprint describes the methods and equipment used for maintenance performance measurements on customers' systems. The response, however, lacks sufficient detail on how the proposed system will be monitored. In addition, Sprint did not provide sufficient detail on what and how specific segments of the network and hardware components at the system level will be monitored. The committee recommends further clarification from Sprint on these issues.



In the maintenance subsection, Sprint describes its *SMART* terminal as the means to access and maintain the proposed system. However, the response lacks sufficient detail and does not explain preventive maintenance processes, intervals or procedures for network, hardware and software components. The committee recommends further clarification from Sprint on these issues.

## **4. SBC**

### **4.1 OVERVIEW**

SBC's response offers four options. Each option is outlined in the following sections.

#### **Option A1**

- Interconnection to redundant selective routers via SS7
- Delivery of calls from selective routers to PSAP on Digital ISDN lines
- Digital network for ALI (data channel of ISDN circuit)
- Reduction of call set up times
- Potential reduction of data delivery issues

#### **Option A2**

- Interconnection to redundant selective routers via SS7
- Delivery of calls from selective routers to PSAP on Digital ISDN lines
- New hi-speed digital ALI circuits to PSAPs (Non-ISDN)
- Reduction of call set up times
- Potential reduction of data delivery issues

#### **Option B**

- Interconnection to redundant selective routers via SS7
- New hi-speed digital ALI circuits to PSAPs (Non-ISDN)
- Use of existing enhanced MF signaling to deliver calls (reuse existing facilities)

#### **Option C**

- Interconnection to redundant selective routers via SS7
- Use of the same existing ALI for all SBC customers
- Integrate all wireless traffic onto wireline network as is done today
- Split trunks between selective routers for redundancy
- Install new ALI links to all non-SBC PSAPs
- Install 2 new trunks to all non-SBC PSAPs

#### **There were common elements to each option, which are listed below:**

- Tandem-to-tandem transfer of calls to any PSAP
- Voice only to neighboring states
- Call overflow between selective routers
- Audit trails
- Call stats
- 24 X 7 monitoring
- 24 X 7 maintenance
- Regularly scheduled preventive maintenance

SBC proposes four options related to wireless voice and data delivery system. Options A1 and A2 would require major changes in existing CPE configurations at the PSAPs. For these reasons, SBC itself urges the Board consider other options:

*“...Both A1 and A2 designs require major equipment modifications or upgrades at the majority of PSAPs in the state. Therefore, SBC proposes alternative solutions using existing NENA-approved signaling technologies. These alternate solutions leverage the capabilities of the existing 9-1-1 equipment and reduce costs....”*

(Source: SBC response) Accordingly, we address options B and C in this report.

### **SBC Option B**

## **4.2 TECHNICAL REQUIREMENTS (RFI SECTION IV)**

### **4.2.1 Network Design (RFI Section 4.2)**

SBC's response is based on the RFI requirement to process 2,000,000 calls annually with 20 percent annual growth over five years. SBC proposes to meet the P.01 grade of service by deploying three selective routers to ensure coverage in the event of a failure.

SBC proposes a redundant selective router network with SS7 facilities and redundant and diverse E-MF trunks from each selective router to the PSAPs. Diagrams detail the architecture and call flow of each proposed option.

The diagrams did not detail network aggregation points (NAPs) as described in the response. The response also lacked detailed information concerning the use of the 13 SBC operating companies and how their resources will be used to provide NAPs, transport, and connectivity necessary to implement Option B.

SBC's solution can accommodate the transfer of calls with voice but does not provide for the capability to transfer calls with data retrieval capabilities to other selective routers in adjacent counties or states. The committee recommends additional clarification from SBC on each of these issues.

### **4.2.2 Selective Router/Database Facilities (RFI Section 4.3)**

SBC's response proposes using central office facilities located in three different geographic areas of the state. The facilities meet the requirements of the RFI, although SBC notes that fencing of the facilities may not be possible. The central offices proposed by SBC provide the security, monitoring, logging and emergency power as required.

SBC's response on facilities requirements did not adequately detail how data related to security was archived or what the retention policy was for this data. In addition, SBC's response did not sufficiently detail AC power, labeling, the prevention of accidental disconnects and SBC's restoration prioritization of 9-1-1 systems. The committee recommends further clarification from SBC on these issues.

#### **4.2.3 Wireless Database Services (RFI Section 4.4)**

The response addressed all requirements in RFI Section 4.4. However, while SBC's solution accommodates the transfer of calls with voice, it does not address the transfer of calls with data retrieval capabilities to other selective routers in adjacent counties or states. The committee recommends further clarification from SBC on this issue.

#### **4.2.4 System Maintenance and Monitoring (RFI Section 4.5)**

The response addressed all requirements in RFI Section 4.5. However, subsections covering response and reporting did not provide sufficient detail. The committee recommends further clarification from SBC on these issues.

#### **SBC Option C:**

Option C is similar to Option B albeit with two distinct differences. Option C would use existing ALI service delivery technology instead of implementing a new high-speed digital data network. Option C also proposes installing new trunks and ALI links to all non-SBC PSAPs. The latter (ALI links) would provide for the same type of wireless call delivery throughout Indiana; it is also consistent with current call delivery within the SBC footprint (which uses common trunks between the PSAP Controller and the PSAP CPE).

## **5. INDIGITAL**

### **5.1 OVERVIEW**

The Indigital response offers three options. Each option is outlined below.

### **5.2 INDIGITAL OPTION G-1**

- 2 Siemens EWSD selective routers
- Interconnection to redundant selective routers via SS7
- Digital ISDN trunks between selective routers
- No new trunks from the tandem to PSAPs are required
- No equipment changes required at PSAP
- Substantial reduction in trunk costs for the wireless carriers (consolidation of trunking from 14 selective routers down to two selective routers)
- Provides statewide conference/transfer capability, in principle
- Eliminates CAMA signaling between the wireless carrier and ILEC selective router
- Provides statewide wireless traffic statistics
- Provides a single point of contact for resolving wireless issues

#### **5.2.1 Option G-1 Review**

The response was based on RFI requirements of 2,000,000 calls annually with 20 percent annual growth over five years and providing P.01 grade of service or better. The design proposes redundant and diverse connectivity for wireless carriers' trunks—via SS7—and proposes the use of digital ISDN facilities between routers, as well as the routers and PSAP controllers where possible, depending on CPE deployed by the ILEC or PSAP. INdigital's response did not address how the proposed solution would interface to non-CML based ILEC equipment. INdigital also proposed leaving existing PSAP trunks in place for call delivery.

INdigital's proposed solution details load balancing, alternate call flow, and the ability for PSAPs to transfer a wireless E9-1-1 call to any other PSAP in the state and reduce call set up time. There were also diagrams and drawings that provided the necessary clarification on these items in the appropriate sections of the response.

It appeared that the response in Section 4.2 complied in general with the technical requirements of the RFI. Notwithstanding, the response still lacked detail sufficient to understand how the G-1 solution would improve the delivery of wireless 91-1 calls, other than aggregating wireless carrier trunks from 14 to two selective routers.

In addition, the hardware proposed to handle the selective routing of calls does not have a historical record of being an established platform for the delivery of wireless E9-1-1 calls. Furthermore, it is not clear whether custom applications have been devised for this solution and

how support will be maintained. The committee recommends further clarification from INdigital on these issues.

### **5.3 INDIGITAL OPTION G-2**

- Continuation of G-1 build out (e.g., selective routers, ISDN PRI trunks)
- Introduction of VoIP as network transport from selective routers to PSAPs, which in turn will require additional equipment at PSAP for IP to legacy equipment conversion
- Private (dedicated) fiber network (IFN – SONET ring)
- Interface of critical and core components to fiber ring
- Provides for additional transport of other data needs at PSAP (e.g., ALI, mapping data, etc.)

#### **5.3.1 Option G-2 Review**

Building upon the G-1 option, INdigital proposed an interim step to an “all VoIP” solution. This particular solution requires additional equipment at the ILEC selective router or PSAP controller to convert the network back to legacy analog connections for call delivery to the PSAP.

### **5.4 INDIGITAL OPTION G-3**

- All G-1 and G-2 Components, G-3 becomes an “all VoIP solution”
- Introduction of VoIP architecture for network
- Introduction of VoIP for wireless call routing
- Elimination of most Time Division Multiplexing (TDM) network components (SS7 to wireless carriers and PSAP connectivity may still be TDM-based components)
- Selective routers replaced by call agent equipment
- Potential costs savings through reduction in the number of physical facilities

#### **5.4.1 G-3 Review**

The G-3 option changes the delivery of wireless calls to an “all VoIP network” and replaces the selective routers with call agents that have built-in intelligence to handle the call routing ability. This approach can use a small leased line network and support the same or better call volumes due to the VoIP compression and call setup and transfer methods. This approach also provides many layers of redundancy far beyond the RFI specifications.

## **5.5 TECHNICAL REQUIREMENTS (RFI SECTION IV)**

### **5.5.2 Network Design (RFI Section 4.2)**

INDigital proposes a three-phase approach to providing a solution that uses two Siemens EWSD switches in a mated pair configuration. The network changes based on their options contained in the response. Option G-1 is a wireless overlay of the existing wireline network, using two Siemens EWSD switches to aggregate the wireless carriers' traffic and distribute calls to PSAPs.

Option G-2 expands on the wireless overlay system by changing out the network and using a VoIP network to deliver calls from the Siemens selective routers to the PSAPs. Option G2 requires a configuration change of PSAP Controllers or CPE to accept calls from the wireless network. INDigital proposes to use network aggregation points (NAPs) that will be connected to the Indiana fiber network to provide connectivity between the Siemens switches, ALI databases and PSAPs in this option.

Option G-3 proposes to expand on the G1 and G-2 options by implementing a "true" VoIP solution using VoIP for both network transport and call processing and delivery. In G3, a complete change of hardware and software is required, replacing the Siemens switches and TDM circuits with a Cisco soft switch (gateway controller), SIP proxy server and a MAPInfo selective routing database. Call agents would direct calls over the VoIP network to the appropriate PSAP. Option G-3 will also require changes to PSAP CPE to enable call receipt from the wireless network. INDigital is proposing redundant Cisco routers to terminal PSAP trunks. If the PSAP requires traditional CAMA-type trunks, additional cards will be required to populate the Cisco routers to facilitate MF signaling.

### **5.5.3 Selective Router/Database Facilities (RFI Section 4.3)**

INDigital appears to comply with the baseline specifications for facilities, security, access control, monitoring and emergency power. However, the response implies that some systems would be implemented at a future time. The committee recommends further clarification from INDigital to explain what is currently in place and what future upgrades to these facilities will be necessary.

### **5.5.4 Wireless Database Services (ALI) (RFI Section 4.4)**

The response to section 4.4 meets the requirements of the RFI and describes the proposed ALI delivery system for all three options. It is not clear, however, whether the system is actually deployed and operational. The committee recommends further clarification from INDigital to determine if this solution has been deployed elsewhere and is truly operational and workable.

### **5.5.5 System Maintenance and Monitoring (RFI Section 4.5)**

INdigital's response to this section is insufficient. The committee recommends further clarification from INdigital as to how its proposal will address system maintenance and monitoring.



## **6. CONCLUSIONS AND RECOMMENDATIONS**

Kimball and the committee have reviewed responses from Sprint, SBC and INdigital which are technically feasible and with which the Board could develop a *Wireless Direct* implementation plan. Each response provided sufficient information to determine technical feasibility, but each response also lacked certain details necessary to fully understand the proposed solution and its strengths and weaknesses.

Kimball recommends that the Board engage each respondent individually in discussions designed to provide clarification and in-depth understanding of each proposed solution. This will allow each respondent to participate in a competitive evaluation process and enable the Board to drive the proposed solutions toward the specific technical and fiscal goals defined in the RFI.

Specifically, Kimball recommends the Board proceed as follows:

- Seek clarification of specific items in each response identified by the evaluation committee
- Provide an opportunity for each respondent to demonstrate the technology and concepts behind their proposed solutions
- Evaluate each response using the Evaluation Criteria Template (attached as Appendix B).

**Indiana Wireless E9-1-1 Advisory Board**  
**RFI Response Cost Matrix: Summary**

**7. APPENDIX A – SYSTEM COST COMPARISON**

	Sprint		Indigital G2		Indigital G3		SBC Proposal B	
	Monthly Recurring	Non-Recurring	Monthly Recurring	Non-Recurring	Monthly Recurring	Non-Recurring	Monthly Recurring	Non-Recurring
Network Transport	\$641,222.00	\$855,504.00	\$215,996.00	\$3,057,980.00	\$215,996.00	\$3,057,980.00	\$0.00	\$1,121,360.00
S/R (Software and Equip)		\$3,691,364.00	\$21,635.00	\$381,600.00	\$22,481.42	1,274,475.00	\$11,616.00	\$39,492.00
ALI		\$1,141,541.00	\$7,708.33	\$209,500.00	\$7,708.33	209,500.00	\$16,309.00	\$210,226.00
Facility	\$1,624.00	\$7,503.00	\$800.00	\$3,600.00	\$800.00	3,600.00	\$298,688.00	\$41,168.00
Maintenance	\$52,129.00		\$24,635.24		\$24,635.24		\$3,386.00	\$63,211.00
Monitoring	\$2,370.00		\$762.50	\$61,000.00	\$762.50	61,000.00	\$529.00	\$39,492.00
Training		\$89,041.00	\$2,104.18	\$179,500.00	\$2,104.18	179,500.00	\$0.00	\$0.00
Totals	<b>\$697,345.00</b>	<b>\$5,784,953.00</b>	<b>\$273,641.25</b>	<b>\$3,893,180.00</b>	<b>\$274,487.67</b>	<b>\$4,786,055.00</b>	<b>\$318,508.00</b>	<b>\$1,514,949.00</b>
5 year projected costs with Non-Recurring Costs (NRCs)	\$41,840,700.00	\$5,784,953.00	\$16,418,475.00	\$3,893,180.00	16,469,260.20	4,786,055.00	\$19,110,480.00	\$1,514,949.00
Total package over 5 years: 60 months + NRCs	<b>\$47,625,653.00</b>		<b>\$20,311,655.00</b>		<b>21,255,315.20</b>		<b>\$20,625,429.00</b>	

Notes:  
Sprint - All pricing seems complete.  
Indigital - Some component pricing errors may exist.  
SBC - Network Transport costs may be included in costs of facilities; pricing needs clarification.

**Indiana Wireless E9-1-1 Advisory Board**  
**RFI Response Cost Matrix: Summary**

	Indigital G1	
	Monthly Recurring	Non-Recurring
Network Transport	\$96,296.00	\$33,646.00
S/R (Software and Equip)	\$20,480.00	\$190,000.00
ALI	Keep present ALI source	
Facility	\$800.00	\$3,600.00
Maintenance	\$0.00	\$0.00
Monitoring	\$0.00	\$0.00
Training	\$0.00	\$0.00
<b>Totals</b>	<b>\$117,576.00</b>	<b>\$227,246.00</b>
RFI Amount		\$464,846.00
5 year projected costs with One time charges	\$7,054,560.00	\$464,846.00
Total package over 5 years 60 months + one time charge	<b>\$7,519,406.00</b>	

Notes:  
Indigital - There is a discrepancy of \$237,600 between the itemized totals and those presented in the RFI. Indigital needs to explain this discrepancy.

## 8. APPENDIX B – EVALUATION CRITERIA TEMPLATE

Indiana Wireless E9-1-1 Advisory Board					
RFI Response Evaluation					
Respondent Name :					
0=Does not Comply 1=Complies but lacks detail 2=Complies w/sufficient detail					
RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.2	<b>Network Design</b>				
	Demonstrates Redundancy				
	Demonstrates Diversity				
	Uses Digital Technologies				
	Complete Responses				
	Demonstrates how Call Set up Time is improved				
	Design for 2 million calls annually				
	Plan for 20% annual growth over 5 years				
	Design to P.01 grade of Service				
	Utilize a minimum of Selective Routers				
	Demonstrate Load Balancing				
	Dedicated wireless trunks S/R to ANI/ALI Controller				
	Network capable of Maintenance Activity, Administrative activity or separate network consideration				
	Ability to integrate telematics, VoIP and other future technologies				
	Improve Data Delivery				
	Capability to transfer wireless call to any PSAP on network				
	Diagrams				
	<b>Section Total</b>				
	<b>Comments:</b>				
4.2.1	<b>Wireless Routing</b>				
	Utilizes Digital based Switching Technology				
	Capability for online monitoring system				
	Capability for system administration position				
	Capability for Maintenance position				
	Capability for positions to be operated locally & remotely with secure connectivity				
	Capability to access systems via dedicated network or through connectivity via PSTN				
	<b>Section Total</b>				
	<b>Comments:</b>				

Indiana Wireless E9-1-1 Advisory Board					
RFI Response Evaluation					
Respondent Name :					
0=Does not Comply 1=Complies but lacks detail 2=Complies w/sufficient detail					
RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.2.2	Interfaces to Network Carriers				
	Explain how Wireless Carriers will connect to Proposed System				
	Describe how system will support NCAS, CAS, HCAS delivery configurations				
	Explain Prime vendor coordination efforts				
	Section Total				
	Comments:				
4.2.3	Integration				
	Describes Proposed system integration of selective routing				
	Describes Proposed system integration of call delivery				
	Describes Proposed system integration of ALL database services				
	Section Total				
	Comments:				
4.2.4	System Configuration				
	Describe system architecture and how component failures only effect module and not system				
	Describes redundancy of central processors				
	Describes system ability to automatically switch over and use redundant modules				
	Describes how in progress 9-1-1 calls are protected in automated switch over of redundant modules				
	Diagram provided detailing items in section 4.2.4				
	Section Total				
	Comments:				
4.2.5	Trunking				
	Describe how proposed system will support SS7, ISDN, MF and interswitch trunking				
	Identifies interface requirements				
	Describes systems ability to bypass route traffic between S/R for redundancy				
	Describes system trunking redundancy and diversity for digital and analog trunks				
	Section Total				
	Comments:				

Indiana Wireless E9-1-1 Advisory Board					
RFI Response Evaluation					
Respondent Name :					
0=Does not Comply 1=Complies but lacks detail 2=Complies w/sufficient detail					
RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.2.6	Scalability				
	Response describes system scalability and methodology for statewide, regional and local implementation				
		Section Total			
		Comments:			
4.2.7	Improved Quality of Service				
	Explains improved call setup times				
	Explains improved transferring of calls				
		Section Total			
		Comments:			
4.2.8	Transfer of Wireless 9-1-1 Calls				
	Describes how transfer of wireless calls and associated data will be handled				
		Section Total			
		Comments:			
4.2.9	Operating Expenses Reduction				
	Response describes how the proposed system will aide the IWB in reducing overall costs				
		Section Total			
		Comments:			
4.2.10	Congestion				
	Describes how congestion due to multiple wireless calls are handled				
	Explains overflow call handling				
	Explains call queing				
	Describes default routing				
	Explains alternate routing				
	Diagrams detailing information in section 4.2.10 are provided				
		Section Total			
		Comments:			

Indiana Wireless E9-1-1 Advisory Board					
RFI Response Evaluation					
Respondent Name :					
0=Does not Comply 1=Complies but lacks detail 2=Complies w/sufficient detail					
RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.2.11	VoIP				
	Response details how proposed system will support wireless call delivery using VoIP technology or how this technology will be incorporated at a later time.				
Section Total					
Comments:					
4.2.12	Cable Telephony				
	Response details how proposed system will support wireless call delivery using Cable Telephony networks or how this technology will be incorporated at a later time.				
Section Total					
Comments:					
4.3	Selective Router / Database Facilities				
	Facility is of solid construction				
	Facility has a 50 FT setback				
	Secure perimeter				
	Barriers to prevent unauthorized entry or environmental contamination				
Section Total					
Comments:					
4.3.1	Security				
	Security System				
	Video Monitoring				
	swipe card controls				
	24X7 access measures				
	Security log system				
	Secure areas alarmed for intrusion detection				
Section Total					
Comments:					
4.3.2	Monitoring				
	Data collection server				
Section Total					
Comments:					



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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.3.3	Logging				
	Security system logs				
	Archival and storage of logs				
	Retention plan for data				
	Section Total				
	Comments:				
4.3.4	Emergency Power				
	UPS with minimum 8 hrs. capacity				
	Emergency Generator with minimum 72 hrs capacity				
	External connections for portable emergency power source				
	restoration plan and priority of operability				
	Section Total				
	Comments:				
4.3.5	Redundancy and Diversity				
	Diverse entry points				
	Preventive measures for accidental disconnects				
	Description of survivability				
	Section Total				
	Comments:				
4.3.6	Environmental				
	Description on how facility protects against				
	Fire				
	Flood				
	Hazardous Materials				
	other situations				
	Section Total				
	Comments:				



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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.3.7	<b>Lightning Protection</b>				
	Description on how facility and components are protected against Lightning strikes				
	Secondary Lightning protection				
	Measures taken for voice circuits				
	Measures taken for data circuits				
	Section Total				
	Comments:				
4.3.8	<b>AC Power Installation and Labeling</b>				
	Installation description				
	labeling plan				
	Details on how accidental disconnection of power will be handled				
	Section Total				
	Comments:				
4.3.9	<b>Grounding</b>				
	Description of Grounding				
	Protection from ground looping				
	Protection from ground fault problems				
	Section Total				
	Comments:				

Indiana Wireless E9-1-1 Advisory Board					
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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.4	Wireless Database Services				
	Ability to process phase I and II ALI requests				
	ALI complies with NENA phase II format, including call back number, longitude, latitude, confidence and uncertainty etc.				
	ALI system includes ability to have records input, changed, deleted in a manual or automated mode				
	ALI system is capable of steering requests to other external database systems				
	ALI system is capable of accepting queries from multiple PSAPS				
	ALI system is capable of providing ALI to multiple types of CPE				
	ALI system maintains audit logs and tracks where ALI requests were steered and the response received				
	ALI system is capable of identifying the Carrier ID in NENA format, also displays other features as speed, direction, height etc.				
	ALI support is available 24 X 7				
	ALI system is capable of secure and remote accessibility and administration				
Section Total					
Comments:					
4.4.1	ALI Database Configurations				
	Description of local and centralized ALI database configuration provided				
	Response describes local and redundant database configurations				
Section Total					
Comments:					
4.4.2	Connectivity to Multiple Wireless Carriers and ALI Databases				
	Response describes how system will interface with multiple carriers and ALI databases				
	Response describes how connectivity will be handled for 10 Wireless Carriers, 168 PSAPs and 3 3rd party data providers				
	Diagram detailing connections is provided				
Section Total					
Comments:					

Indiana Wireless E9-1-1 Advisory Board					
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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.4.3	Data Integrity				
	Response describes how data delivery will be enhanced				
	manual ALI rebid activity is described				
	automatic ALI rebid activity is described				
	Response describes how ALI rebids will be handled from authorized PSAPs outside the network				
	Section Total				
	Comments:				
4.4.4	Dynamic Updates of X,Y				
	Response details how the functionality for dynamic updates of X,Y data				
	Section Total				
	Comments:				
4.4.5	Boundaries Data Update				
	Response provides details on how relative boundary changes occur for PSAP and cell sites and sectors				
	Section Total				
	Comments:				
4.4.6	E2+ALI Standard				
	Description is provide on E2+ interface				
	Section Total				
	Comments:				
4.4.7	Quality of Service				
	Response provides information on how the time necessary to deliver wireless call data is improved				
	Section Total				
	Comments:				

Indiana Wireless E9-1-1 Advisory Board					
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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.5	<b>System Maintenance &amp; Monitoring</b>				
	Response provides for 24 X 7 System monitoring and support				
	Network Transport Monitoring				
	Selective Router Monitoring				
	Wireless 9-1-1 Trunk Monitoring				
	Wireless Database Monitoring				
	Computer Hardware Monitoring				
	LAN/WAN component Monitoring				
Section Total					
Comments:					
4.5.1	<b>Contact</b>				
	Respondant has proposed a 24 X 7 contact number for support				
Section Total					
Comments:					
4.5.2	<b>Monitoring</b>				
	Description of Monitoring capabilities is provided				
	Methodology for remote monitoring have been supplied				
	Description of facilities for system monitoring				
	Description of personnel utilized for system monitoring				
Section Total					
Comments:					

Indiana Wireless E9-1-1 Advisory Board RFI Response Evaluation					
Respondent Name :					
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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.5.3	Maintenance				
	Response describes Preventive Maintenance for Systems				
	Network Transport				
	Selective Routers				
	Wireless 9-1-1 Trunks				
	Wireless 9-1-1 Databases				
	Computer Hardware				
	Computer Software				
	Response describes System Maintenance				
	Network Transport				
	Selective Routers				
	Wireless 9-1-1 Trunks				
	Wireless 9-1-1 Databases				
	Computer Hardware				
	Computer Software				
	Response describes System upgrades (Firmware, Software etc)				
	Network Transport				
	Selective Routers				
	Wireless 9-1-1 Trunks				
	Wireless 9-1-1 Databases				
	Computer Hardware				
	Computer Software				
	Section Total				
	Comments:				
4.5.4	Response				
	Proposal describes how respondent will handle trouble or outage that does not effect 9-1-1 call delivery				
	Proposal describes how respondent will handle trouble or outage that effects 9-1-1 call delivery				
	Proposal provides a description of personnel to be utilized for response to trouble or outages and their ability to meet response times				
	Section Total				
	Comments:				

Indiana Wireless E9-1-1 Advisory Board					
RFI Response Evaluation					
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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.5.5	Reporting				
	Description provided on how all trouble reports will be logged				
	Information supplied on how this information will be provided to the IWB for review and the frequency with which the board can expect to receive this information.				
	Proposal provides a description of personnel to be utilized for response to trouble or outages and their ability to meet response times				
Section Total					
Comments:					
4.5.6	Training				
	Description on how all support personnel are trained				
Section Total					
Comments:					
4.5.7	Spare Parts				
	Describe how an inventory of spare parts will be maintained and tracked for system repairs				
	Describe how the inventory of spare parts will be kept current to manufacturers specifications				
Section Total					
Comments:					
4.6	Training				
	Description of training methodologies				
Section Total					
Comments:					

Indiana Wireless E9-1-1 Advisory Board					
RFI Response Evaluation					
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RFI Section:	Description	Comply Yes / No	Weight	Request Clarification	Exception
4.6.1	Training Methodology				
	Train the Trainer				
	Supervisory Training				
	User Training				
	System Administration				
	Indication that training manuals and instructional materials will be supplied				
	Qualification of Training staff have been provided				
Section Total					
Comments:					
5.1	Pricing - Board Requirements				
	Monthly - Recurring Costs				
	One Time - Non-Recurring Costs				
Section Total					
Comments:					
5.2	Pricing - Cost Breakdown				
	Component Level Pricing by category				
	Network Transport				
	Selective Routing Equipment				
	ALI Database Hardware				
	ALI Database Software				
	Facility				
	Maintenance				
	Monitoring				
	Training				
Section Total					
Comments:					